Boeing and AIT
NDIA Unique Identification Seminar June 2005
Steve Georgevitch

Boeing's Approach to AIT

- **Robert Metcalfe founded 3Com Corporation and designed the Ethernet protocol for computer networks.**

Metcalfe's Law states that *the usefulness, or utility, of a network equals the square of the number of users.*

UID, RFID and other enabling technologies are key to our Network Centric approach to business.

Integration across the supply chain,
Interoperability of the technologies and
Scalability of information are key to AIT success

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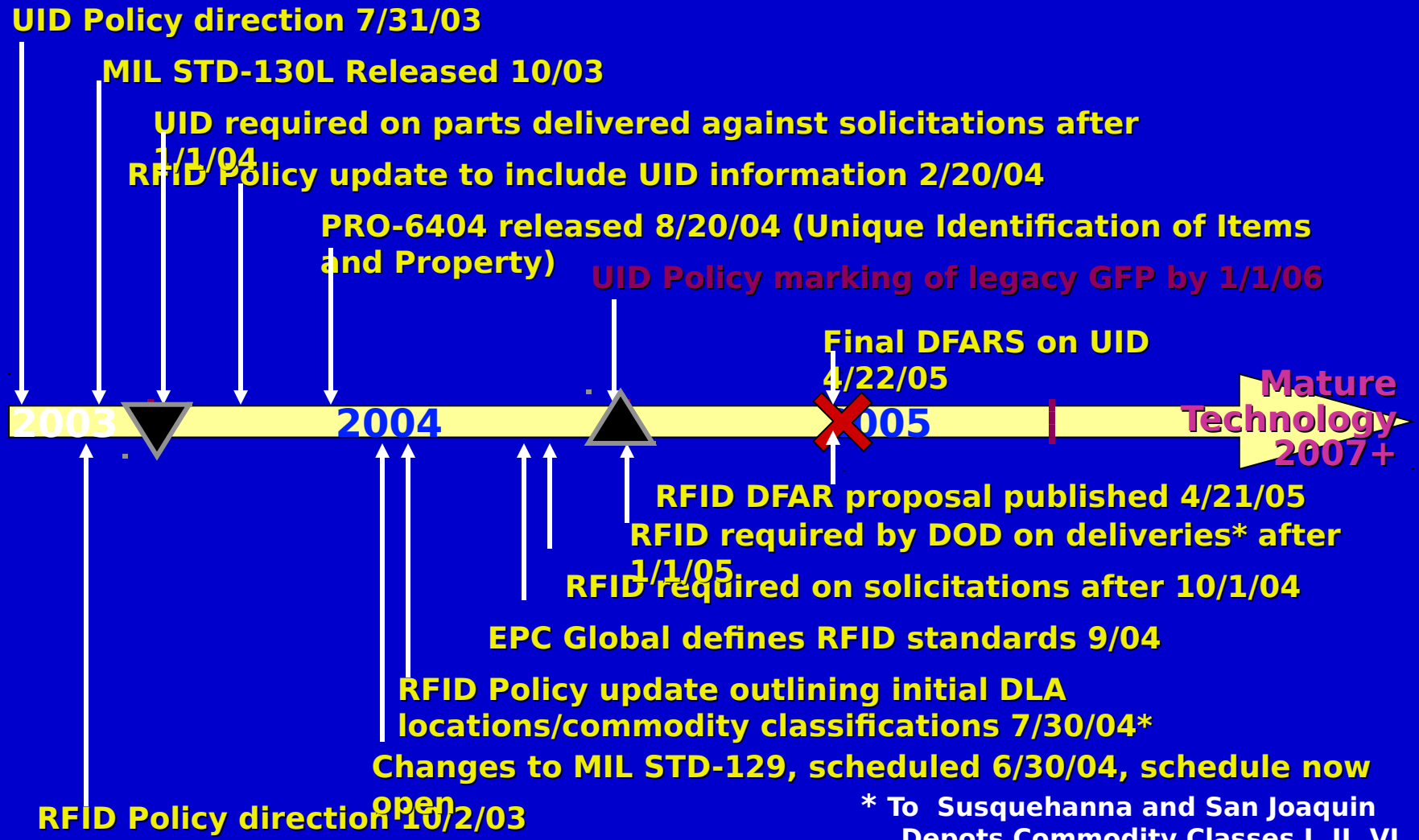
DoD RFID/UID Timelines
...and Immediate Concerns


UID Policy direction 7/31/03
MIL STD-130L Released 10/03
UID required on parts delivered against solicitations after 1/1/04
RFID Policy update to include UID information 2/20/04
PRO-6404 released 8/20/04 (Unique Identification of Items and Property)
UID Policy marking of legacy GFP by 1/1/06
Final DFARS on UID 4/22/05
2003
2004
2005
Mature Technology 2007+
RFID DFAR proposal published 4/21/05
RFID required by DOD on deliveries* after 1/1/05
RFID required on solicitations after 10/1/04
EPC Global defines RFID standards 9/04
RFID Policy update outlining initial DLA locations/commodity classifications 7/30/04*
Changes to MIL STD-129, scheduled 6/30/04, schedule now open
RFID Policy direction 10/2/03

* To Susquehanna and San Joaquin Depots Commodity Classes I, II, VI, IX only

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UID – Addressing Compliance

- We have initiated discussion with our resident DCMA regarding a Single Process Initiative approach to UID implementation
- We are responding to RFPs & working with our customers to begin incorporating UID, but contracts are early in their formative state.
- Our experience in part marking and UID is based on commercial aircraft practices and early DoD development work.
- We have a standard flow-down clause to our suppliers for UID that all components to use (single face to our suppliers).
- We are creating the capability to utilize both Construct 1 & 2 UIDs at most sites - our suppliers or GFE providers may use a different construct than we have elected to use ourselves.
- Data constructs will vary by Boeing Site. Each program will be working directly with their customers to determine the 'best fit'.

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Elements of Authorization

- Top level SPI MOA articulates principles common across IDS for implementation of UID
- Supplemental site-level SPI MOAs address more detailed site-specific implementation plans
- Both implemented by Special Provision inserted into legacy contracts via Block Change mods
  - Compliance with DFARS UID clause and related standards will be in accordance with referenced SPIs
  - UID requirements dormant until authorization & funding of program-unique implementation

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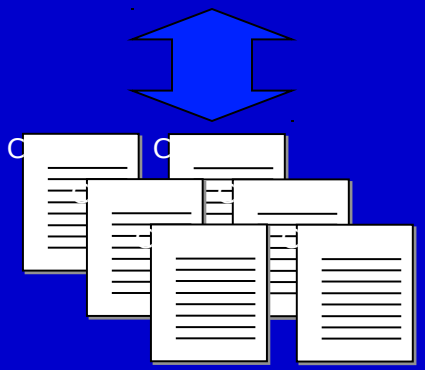
Framework for UID SPI

DCMA/IDS Enterprise UID SPI MOA

- Common principles; framework for site-level SPIs
- Referenced in site-level Block Change mods

DCMA/IDS Site UID SPI



- Block Change mod incorporating DFARS clause, MIL-STD-130L/M, Special Provision tying activation of UID requirements to authorization & execution
- Site-level implementation plan

- Service/Component customers authorize/fund UID implementation – activates above Special Provision
- CLIN/SLIN changes/Attachments to itemize UID parts
- New contracts also reference SPI(s)

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Top-Level SPI MOA

- **Common principles for UID implementation across IDS:**
  - **Site leadership and DCMA resident offices will develop site-specific implementation plans**
  - **Contractor (by site) selects MIL-STD-compliant UID Construct; respects supplier/subcontractor/IWA choices**
  - **DCMA and site/program leadership work together with program customers re any equitable adjustments for nonrecurring costs, potential patent issues, and with DCMA-HQ re WAWF enhancements for UID**
  - **Acquisition of general purpose marking/reading equipment and IT system enhancements for UID will typically be treated per existing ABU accounting disclosure statement(s)**
  - **Estimating techniques (options) for development of Government Unit Acquisition Cost (GUAC) values under cost-type contracts**
    - Also T&M contracts, based on Final Rule change

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Site-Level SPI Mod

- Block Change contract mod covering site's DoD contracts that involve delivery of hardware items
- References IDS-level UID SPI MOA principles
- Invokes site-level UID implementation plan
- Incorporates DFARS UID clause, MIL-STD-130 (L or M) and related requirements, and a Special Provision regarding activation of UID requirements that:
  - Ties activation to execution of site level UID implementation plan
  - Ties to funding (if required) of nonrecurring implementation cost
  - Invokes DCMA authority to extend applicability of UID requirements consistent with the implementation plan
  - Provides authorization and consent to use of possibly patented 2-D matrix barcode format mandated by DoD UID policy
- Coordinated with affected program customers for concurrent modification of individual contracts to specify items (including <$5K or embedded) that require UID

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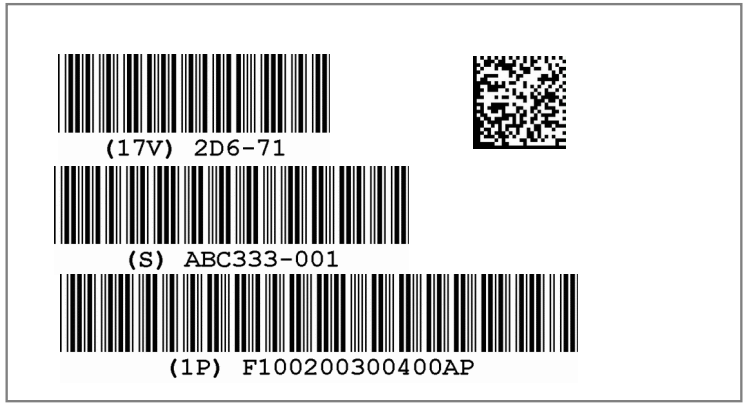
Opportunistic Parts Marking (OPM) Configuration

- This evolution in Automatic Identification Technology (AIT) is housed in a Mobile Trailer
  - Satisfies DoD requirement for marking unique identifiers on parts
  - 2-D symbology dramatically improves the ability to identify, track and manage parts
- Strong Information Management Capabilities
  - System, Method & Computer Program Patent
  - S/W & Know How
- Growth Potential - OEMs
  - Working integration with OEM systems



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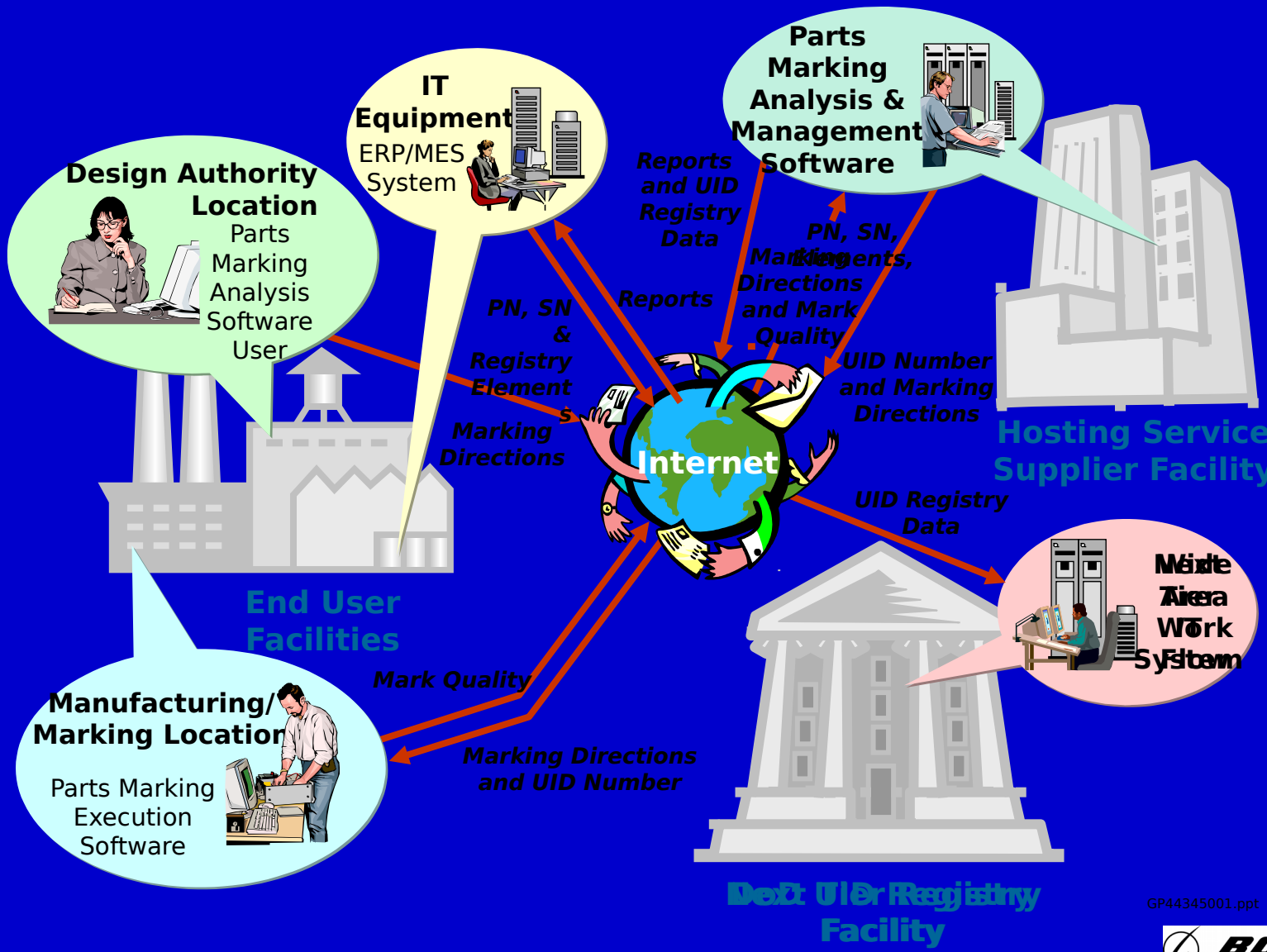
OPM Configuration



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CH-47F Model

- The Army and Boeing have developed a list of approx. 232 CH-47F parts for MRC marking.
- Many are dynamic components that are “Flight Critical” parts, including gears, bearings, rotor components and other critical serialized parts.
- The 2-D Data Matrix part mark establishes the UID for the component, serialized per Construct 1. It is the “key” to the informational data base for the component.
- Preliminary review segregated these parts into three categories.
  - Y1 - labels and nameplates (75)
  - Y2 - direct part marks on field replaceable parts or assemblies (45)
  - Y3 - direct part marks on detail critical components like gears and bearings (112)
- This effort is being coordinated by a multifunctional team that is led by Aerospace Support.

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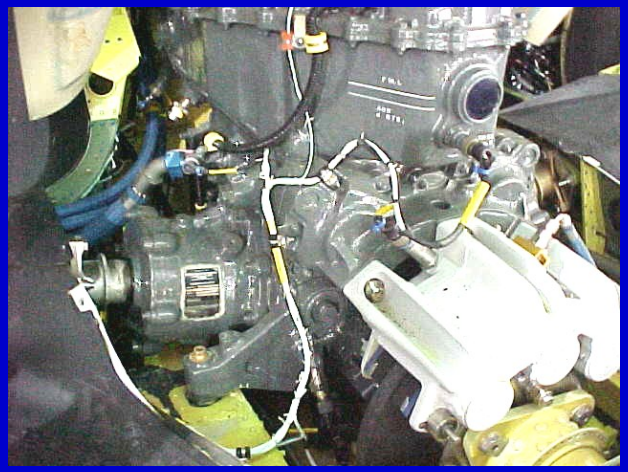
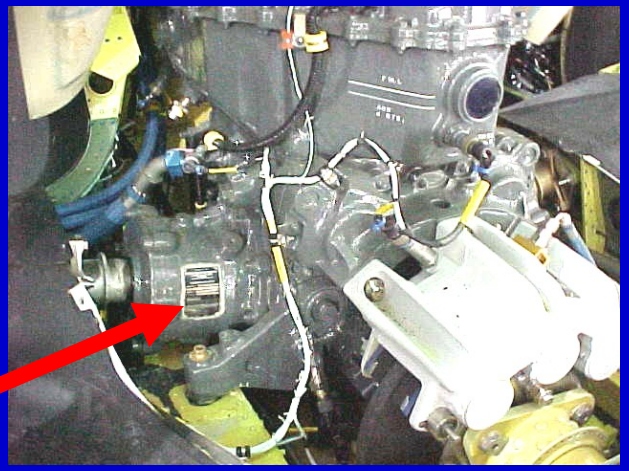
Current



Proposed

LABEL



<<P/N xyz / COMBINER TRANSMISSION>>

UID Customer Approach

- **Working with Our Customers to Develop ConOps beyond entry point into DoD Supply Chain**
- **Ensuring flexibility within our operations to support customer needs (Data Constructs, Marking Requirements)**
- **Addressing the needs of all stakeholders (Finance, Logisticians, Maintainers)**
- **Working with Industry Associations such as AIA to represent common concerns of industry to the DoD**

Working to understand costs to incorporate UID (marking & data delivery) vs. costs to achieve benefits

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Support of RFID

- Boeing has operational RFID systems at 3 separate sites
- Enterprise teams support development in 3 major areas:
  - Business Process Applications
  - Physics and Hardware
  - Systems and Architecture
- Working directly with OSD in ‘early implementation’ and support of policy

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Working RFID on End-to-End Supply Chain

Suppliers

Paint Pallet

Sealant Tubes

Working with Supply Base

Internal Operations

Material Receiving

Sealant Tracking

Order Tracking

Proving technology in Operating Environment

Customers

Homeland Security

NAVSUP

UNITED STATES TRANSPORTATION COMMAND

DOD LOG AIT

FCS

Actively engaging in discussion for joint pilots

Ensure Compatibility with Our Customers

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Questions or Comments:

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